Vector Network Analyzer

Bode 100 - 1 Hz to 50 MHz

Transmission/Reflection
Measure S-parameters of cables, filters, amplifiers, antennas and more.

Resonance Frequency
Detect even very narrow, high-Q resonance peaks of piezo elements or RFID and NFC transponders.

Frequency Response
Measure the complex transfer function (Gain/Phase) of active and passive electronic systems.

Complex Impedance
Analyze passive electronic components and active electronic circuits.

Stability Analysis
Analyze electronic control systems such as power supplies. Generate Bode diagrams & Nyquist plots.

Automated Measurements
Integrate the Bode 100 into measurement setups via its versatile Automation Interface.

OMICRON LAB

Smart Measurement Solutions®

Bode 100

The Bode 100 consists of hardware and software. The high quality hardware ensures **accurate** measurement results in the **wide frequency range** from 1 Hz to 50 MHz. Its **portable** and **compact** design enables you to test wherever you want. Due to the **versatile** system design, the Bode 100 works as **three devices in one**:

1. Vector Network Analyzer

The vector network analyzer function of the Bode 100 allows you to measure:

- Swept S-parameters in the 50 Ω system
- Reflection coefficient and return loss
- Insertion loss of filters
- Group delay characteristics
- Influence of termination on amplifiers

2. Frequency Response Analyzer

The Bode 100 serves as a Gain/Phase meter and is ideally suited to measure:

- Transfer functions of electronic circuits
- Stability of control systems such as DC/DC converters or voltage regulators
- Power Supply Rejection Ratio (PSRR) respectively Audio Susceptibility

3. Impedance Analyzer

The Bode 100 offers you a high variety of impedance measurement possibilities to easily analyze:

- Electromagnetic devices such as transformers and inductors
- Capacitors and their parasitics
- Ultrasonic and piezo electric components
- Very high Q-circuits such as quartz crystals and oscillators
- Input impedance and output impedance of electronic circuits
- Resonance frequency of RFID, NFC and wireless power systems
- Impedance of power delivery networks (PDN)

Your benefits:

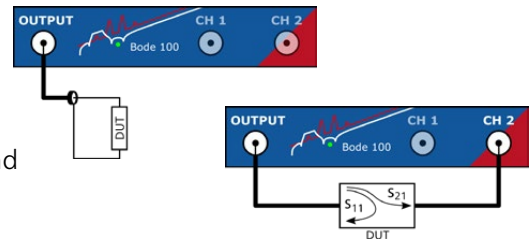
- One device for multiple applications
- Accurate measurement results
- Simple setup - fast results
- Easy data processing
- Automated measurements

Bode Analyzer Suite

You can fully control the Bode 100 via the Bode Analyzer Suite (BAS). The BAS is an **easy-to-use**, intuitive user interface, which is **included** in the Bode 100 delivery. It allows you to control the Bode 100 hardware from your Windows PC. The BAS helps you to quickly **measure and analyze** your device under test. In addition, it offers great functions to **save**, **document and share** your measurement results.

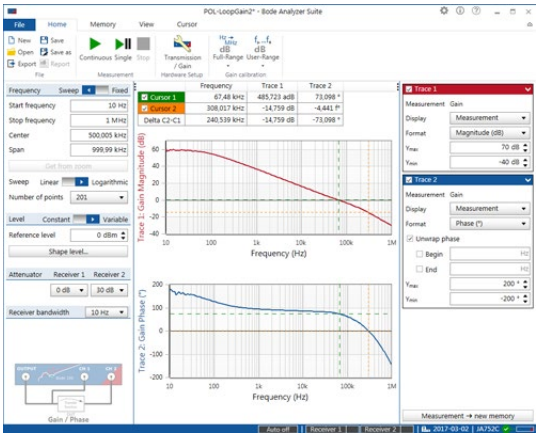
Measurement Modes

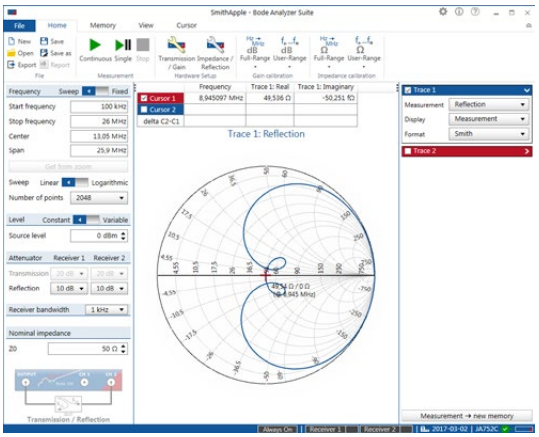
The BAS offers pre-defined measurement modes for quick configuration of the Bode 100 hardware. Impedance measurements from mΩ to MΩ are supported in Shunt-Thru and Series-Thru configuration.



Analysis

To understand and optimize your system under test, the BAS offers all kind of chart formats, like Smith, Polar, Nyquist and Bode plots. You can extract all required results and parameters from your measurements using a great variety of analysis features & manipulate your data using mathematical expressions.





Documentation

The BAS helps you to easily extract the measurement results for your documentation. You can share and archive your results by:

- Exporting CSV, Excel or Touchstone files.
- Copying and pasting the results, charts and settings into your documents.
- Generating a PDF report containing all measurement graphs and device settings.
- Saving your entire measurement including the device settings to a *.bode3 file which can be viewed on any Windows PC having the Bode Analyzer Suite 3.X installed.

Integration & Automation

Easily automate your Bode 100 measurements via the Bode Automation Interface 3.X using:

- OLE compliant controllers such as VBA (e.g. Excel), Matlab,…
- Programming languages like Visual Basic, C#, C++ or any other COM+ compatible system/language
- LabVIEW 2015 or newer

Technical Data

Signal Source (BNC Connector)

Frequency range:	1 Hz to 50 MHz
Output impedance:	50 Ω
Waveform:	Sinusoidal signal
Signal level:	-30 dBm to 13 dBm @ 50 Ω

Inputs: CH1, CH2 (BNC Connector)

Input impedance:	50 Ω or 1 MΩ || 50 pF
Receiver bandwidth:	1 Hz to 5 kHz
Input attenuators:	0 dB, 10 dB, 20 dB, 30 dB, 40 dB
Input sensitivity:	100 mV_{RMS} full scale @ 0dB
Dynamic range:	> 100 dB
Gain error:	< 0.1 dB (calibrated)
Phase error:	< 0.5° (calibrated)

PC Requirements

Processor:	Core-i Dual-Core (or similar)
Memory (RAM):	2 GB, 4 GB recommended
Graphics resolution:	> Super VGA (1024x768)
Graphics card:	DirectX11 with Direct2D
USB interface:	USB 2.0 or higher
Operating system:	Windows 10

General

Weight Bode 100:	< 2 kg / 4.4 lbs
Dimensions:	26 x 5 x 26.5 cm 10.25 x 2 x 10.5 inch
DC power demand:	9 V - 24 V / 10 W

Delivery Includes

Vector Network Analyzer Bode 100
Bode Analyzer Suite on DVD
Printed Quick Start Guide (English)
Power supply (100 V - 240 V / 47 Hz - 63 Hz)
USB cable
4 x 0.5 m BNC cable 50 Ω (m - m)
1 x BNC T-adapter (f - f - f)
1 x BNC straight adapter (f - f)
1 x BNC 50 Ω load (m)
1 x BNC short circuit (m)
Test objects: quartz filter and IF filter on a PCB
Order number: P0005755

Accessories

B-WIT 100
Wideband injection transformer
Order number: P0005758

B-LFT 100
Low-frequency injection transformer
Order number: P0005773

B-SMC
Impedance fixture for SMD components
Order number: P0005759

B-WIC
Impedance fixture for THT components
Order number: P0005760

B-AMP 12
Amplifier to increase output power.
Order number: P0005772

B-LCM
Low-frequency common mode choke
Order number: P0005778

PML 111O & PHV 1000-O
Passive 10:1 or 100:1 probe for Bode 100
Order numbers:
10:1 Probe PML 111O: B1666600
100:1 Probe PHV 1000-O: P0008137

B-RFID
Measure contactless resonance-frequency and Q-factor of RFID and NFC tags
Order numbers:
B-RFID-A for Class 1: P0005774
B-RFID-B for Class 3: P0005775
B-RFID-C for Class 6: P0005776

Carrying Case
Protective case for your Bode 100
Order number: E1399000

B-RMK-10 Rack Mount Kit
Order number: P0001108